Claims

[c1]   What is claimed is:

1.An apparatus of color conversion for converting a first color space to a second color space, wherein both the first and the second color space at least include a first color element and a second color element, the apparatus comprising:

a look-up-table for storing a relationship between the first color space and the second color space; and

a converter for converting the first color space to the second color space according to the relationship stored in the look-up-table.

[c2]   2. The apparatus of claim 1 wherein both the first color element and the second color element are one of red, green, and blue.

[c3]   3.The apparatus of claim 1 wherein the apparatus further comprises a gamma correcting circuit for converting the first color element of the first color space to the second color element of the second color space.

[c4]   4. The apparatus of claim 1 wherein the relationship stored in the look-up-table comprises a plurality of val-

ues of the first color element of the first color space corresponding to a single value of the second color element of the second color space.

[c5]   5. The apparatus of claim 4 wherein eight values of the first color element of the first color space correspond to a value of the second color element of the second color space.

[c6]   6. The apparatus of claim 4 wherein the values of the first color space and the second color space are 8-bit binary values.

[c7]   7. The apparatus of claim 6 wherein the look-up-table is indexed using a number of bits of the values of the first color space.

[c8]   8.The apparatus of claim 7 wherein the look-up-table is indexed using the five most significant bits of the values of the first color space.

[c9]   9.The apparatus of claim 1 wherein both the first color space and the second color space include a first, a second, and a third color element and the look-up-table at least includes a first sub-table for storing a relationship between the first color element of the first color space and the second color element of the second color space, a second sub-table for storing a relationship between

the first color element of the first color space and the third color element of the second color space, a third sub-table for storing a relationship between the second color element of the first color space and the first color element of the second color space, a fourth sub-table for storing a relationship between the second color element of the first color space and the third color element of the second color space, a fifth sub-table for storing a relationship between the third color element of the first color space and the first color element of the second color space, and a sixth sub-table for storing a relationship between the third color element of the first color space and the second color element of the second color space.

[c10] 10.The apparatus of claim 1 wherein the apparatus is used in a liquid crystal display (LCD).

[c11] 11. A method of color conversion for converting a first color space to a second color space, wherein both the first and the second color space at least include a first color element and a second color element, the method comprising:

provising a look-up-table for storing a relationship between the first color space and the second color space; and

converting the first color space to a second color space

according to the relationship stored in the look-up-table.

[c12]   12. The method of claim 11 wherein both of the first color element and the second color element are one of red, green, and blue.

[c13]   13.The method of claim 11 wherein the method further comprises executing a gamma correction for converting the first color element of the first color space to the second color element of the second color space.

[c14]   14. The method of claim 11 wherein the relationship stored in the look-up-table comprises a plurality of values of the first color element of the first color space corresponding to a single value of the second color element of the second color space.

[c15]   15. The method of claim 14 wherein eight values of the first color element of the first color space correspond to a single value of the second color element of the second color space.

[c16]   16. The method of claim 14 wherein the values of the first color space and the second color space are 8-bit binary values.

[c17]   17. The method of claim 16 wherein the look-up-table is

indexed using a number of bits of the values of the first color space.

[c18] 18. The method of claim 17 wherein the look-up-table is indexed using the five most significant bits of the values of the first color space.

[c19] 19. The method of claim 11 wherein both of the first color space and the second color space include a first, a second, and a third color element and the look-up-table at least includes a first sub-table for storing a relationship between the first color element of the first color space and the second color element of the second color space, a second sub-table for storing a relationship between the first color element of the first color space and the third color element of the second color space, a third sub-table for storing a relationship between the second color element of the first color space and the first color element of the second color space, a fourth sub-table for storing a relationship between the second color element of the first color space and the third color element of the second color space, a fifth sub-table for storing a relationship between the third color element of the first color space and the first color element of the second color space, and a sixth sub-table for storing a relationship between the third color element of the first color space and the second color element of the second color

space.

[c20] 20. The method of claim 11 wherein the method is used in a liquid crystal display (LCD).